



UTILITY
PATENT APPLICATION
TRANSMITTAL

except for new nonprovisional applications under 37 C.F.R. 1.53(b))

 J PATENT APPLICATION TRANSMITTAL <small>for new nonprovisional applications under 37 C.F.R. 1.53(b)</small>  111-16100 72 U.S. PTO	<p>UTILITY</p>
	<p>Attorney Docket No. 1994/00015</p> <p><i>First Named Inventor or Application Identifier</i> Kazuo KODA et al.</p>
<p><i>Title</i></p>	METHOD AND APPARATUS FOR TRANSMITTING INFORMATION AND REPRODUCING APPARATUS, RECEIVING APPARATUS AND RECORDING MEDIUM FOR THE INFORMATION, AND TRANSMISSION DATA THEREOF
<i>Express Mail Label No</i>	

APPLICATION ELEMENTS

1. Filing fee as calculated below.

2. Applicant claims small entity status
See 37 CFR 1.27.

3. Specification [Total Pages (24)]
(preferred arrangement set forth below)

- Descriptive title of the invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

4. Drawing(s) *(35 USC 113)* [Total Pages (6)]

5. Oath or Declaration [Total Pages (4)]

a. Newly executed (original or copy)

b. Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 16 completed)

1. **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)

6. Application Data Sheet. See 37 CFR 1.76

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No. _____

Continuation Divisional Continuation-in-part (CIP) of prior application
Prior application information: Examiner _____ Group/Art Unit _____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

Commissioner for Patents
Box Applications
Washington, D.C. 20231

7. Microfiche Computer Program (*Appendix*)

8. Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)

- Computer Readable Form (CRF)
- Specification Sequence Listing on:
 - CD-ROM or CD-R (2 copies); or
 - paper

c. Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- Assignment papers (cover sheet & documents)
- 10. 37 CFR 3.73(b) Statement Power of Attorney
(when there is an assignee)
- 11. English Translation Document *(if applicable)*
- 12. Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS
Citations
- 13. Preliminary Amendment
- 14. Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
- 15. Certified copy of Priority Document(s)
(if foreign priority is claimed)
- 16. Other:

17. CORRESPONDENCE ADDRESS	
<input checked="" type="checkbox"/> Customer Number or Bar Code Label	<input type="checkbox"/> Insert Customer No. or Attach bar code <input type="checkbox"/> Correspondence address below

17. CORRESPONDENCE ADDRESS

<input checked="" type="checkbox"/> Customer Number or Bar Code Label <small>(Insert Customer No. or Attach bar code label here)</small>		<input type="checkbox"/> correspondence address below			
NAME	Pollock, Vande Sande & Amernick, R.L.L.P. Suite 800				
ADDRESS	1990 M Street, N.W.				
CITY	Washington	STATE	DC	ZIP CODE	20036-3425
COUNTRY	U.S.A	TELEPHONE	(202) 331-7111	FAX	(202) 293-6229

Fee Calculation and Transmittal

(Col 1) NO. FILED	(Col 2)	(Col 3) NO. EXTRA	SMALL ENTITY		NON-SMALL ENTITY	
			RATE	Fee	OR	RATE
TOTAL	12	minus	20	= 0	x9=	\$ 0.00
INDEP	6	minus	3	= 3	x40=	\$ 240.00
<u>First Presentation, Multiple Dependent Claims</u>			+135=	\$ 0.00	+270=	\$ 0.00
Base Filing Fee				\$355		\$710.00
Other Fee (specify purpose) <u>Assignment Recordation</u>				\$ 0.00		\$40.00
TOTAL FILING FEE* (accounting for possible small entity status)				\$ 0.00	OR	TOTAL \$990.00

A check in the amount of \$ 990.00 to cover the filing fee is enclosed

No payment is enclosed at this time. Full payment will be made when the executed Declaration is submitted.

The Director is hereby authorized to charge and credit Deposit Account No. 22-0185 as described below. A duplicate copy of this sheet is enclosed.

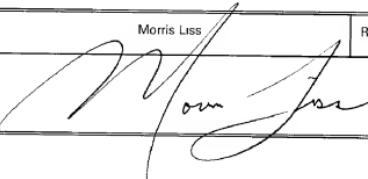
Charge the amount of \$990.00 as filing fee

Credit any overpayment.

Charge any additional filing fees required under 37 CFR § 1.16

Charge any additional filing fees required under 37 CFR § 1.17

If filing fee is not enclosed herewith, the filing fee(s) required to Deposit Account No. 22-0185.

Name (Print/Type)	Morris Liss	Registration No. (Attorney/Agent)	24,510
Signature		Date	11/15/2000

US PATENT APPLICATION

Title of Invention: METHOD AND APPARATUS FOR TRANSMITTING
INFORMATION, AND REPRODUCING APPARATUS,
RECEIVING APPARATUS AND RECORDING MEDIUM FOR
THE INFORMATION, AND TRANSMISSION DATA THEREOF

Filing No. & Date:

Applicant: Kazuo KODA
3-76-3, i-710, Mutukawa, Minami-ku, Yokohama-shi
Kanagawa-ken, Japan

Seiji HIGURASHI
1-36-7, Midori-cho, Fuchu-shi, Tokyo, Japan

Takayuki SUGAHARA
3-23-7-1-702, Hon-cho, Yokosuka-shi
Kanagawa-ken, Japan

Inventor(s): - ditto -

Priority Data: Japanese Patent Applications
No. 11-335501/1999 filed on November 26, 1999
No. 2000-14671/2000 filed on January 24, 2000

Assignee: VICTOR COMPANY OF JAPAN, LIMITED
No. 12, 3-chome, Moriya-cho, Kanagawa-ku
Yokohama, Kanagawa-ken, Japan

Other Countries Filed: EPC (GB, DE and FR)

Our Ref. No.: TP000313US

VICTOR COMPANY OF JAPAN, LIMITED

METHOD AND APPARATUS FOR TRANSMITTING
INFORMATION, AND REPRODUCING APPARATUS, RECEIVING
APPARATUS AND RECORDING MEDIUM FOR THE
INFORMATION, AND TRANSMISSION DATA THEREOF

5

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to a method and an apparatus
10 for transmitting information, and a reproducing apparatus, a
receiving apparatus and a recording medium for the information,
and transmission data thereof, particularly, relates to a
transmission for preventing digital information recorded on a
recording medium in a packet and digital information transmitted
15 through a broadcasting or telecommunications from illegal
duplication or copying, such that a method and an apparatus for
transmitting information, and a reproducing apparatus, a
receiving apparatus and a recording medium for the information,
and transmission data thereof, which performs recording and
20 reproducing.

Description of the Related Art:

In an apparatus, which can copy digitally, such as a digital
audio tape (DAT) recorder, the serial copy management system
25 (SCMS), which permits copying from an original recording once, is
well known as a copy guard technology for preventing
infringement of copyright such that illegally copying down from a
recording medium prerecorded with information into another

recording medium. The SCMS system controls copying by using a copy prohibiting/permitting flag, which is contained in a digital audio interface signal.

Further, the copy generation management system (CGMS) is
5 well known as a copy control system, which controls copying down
from a recording medium recorded with a video signal into another
recording medium. The CGMS system transfers two bits of a copy
generation control signal. A recording apparatus of the system is
organized such that copying is permitted, in a case that a value of
10 a two bit signal is "00". In a case of "10", copying is permitted once.
In a case of "11", copying is prohibited. Furthermore, in a case of
"10", the system converts it into "11" automatically and records
just one time.

Moreover, in a field of a VTR (Video Tape Recorder) or a DVD
15 (Digital Versatile Disk), recording and reproducing apparatuses
such as disclosed in the Japanese Patent Laid-open Publications
61-201586/1986 and 9-83936/1997 are also well known. These
apparatuses certify an apparatus or a device related and transfer
a scramble key such that each apparatus has an inherent ID and
20 makes a video signal deform by using the ID and random numbers
and records by inserting the random numbers in a vertical
blanking period when recording, and further, the apparatus
restores the video signal by using the random numbers read out
from the vertical blanking period and the ID when reproducing.

25 An environment, which is for developing a recording and
reproducing apparatus with considering a copyrighter by using the
SCMS and CGMS systems and further a macro-vision signal, is
getting regulated. However, in a case of a digital transmission,

some copyrighters worry about appropriation by a computer. In a case of an analog transmission, other copyrighters worry about casual copying by a current apparatus or equipment. Furthermore, some of current copyrighters mention that an environment for
5 selling prerecorded software in high definition is not prepared yet.

SUMMARY OF THE INVENTION

10 Accordingly, in consideration of the above-mentioned problems of the prior art, an object of the present invention is to provide a method and an apparatus for transmitting information, and a reproducing apparatus, a receiving apparatus and a recording medium for the information, and transmission data
15 thereof, which can prevent illegal copying more effectively with being able to designate an output format by a copyrighter.

In order to achieve the above object, the present invention provides, according to a first aspect thereof, a method for transmitting information to an outputting apparatus, which can
20 converts an information in a transport packet into at least one signal format out of a plurality of signal formats being different from each other and output the converted information, the method is characterized in that a flag for designating a signal format to be outputted by the outputting apparatus is transmitted with being
25 included in the information.

According to a second aspect of the present invention, there provided an apparatus for transmitting information with generating an information to be transmitted to an outputting

apparatus, which can converts information in a transport packet into at least one signal format out of a plurality of signal formats being different from each other and output the converted information, the apparatus is characterized in that a flag for

5 designating a signal format to be outputted by the outputting apparatus is transmitted with being included in the information.

According to a third aspect of the present invention, there provided a reproducing apparatus having a plurality of outputting sections, which converts an information reproduced from a recording medium into a plurality of signal formats being different from each other and outputs respective signal formats, wherein the recording medium is previously recorded with a flag, which designates an output signal format from the plurality of outputting sections, the reproducing apparatus comprising: extracting means for extracting the flag from a reproduced signal from the recording medium; controlling means for activating an outputting section, which outputs a designated output signal format out of the plurality of outputting sections in accordance with the flag and controls the other outputting sections to prohibit to be activated.

According to a fourth aspect of the present invention, there provided a receiving apparatus having a plurality of outputting sections, which converts a signal information received through a predetermined transmission line into a plurality of signal formats being different from each other and outputs respective signal formats, wherein the signal information received through the predetermined transmission line is previously multiplexed with a flag, which designates an output signal format from the plurality

5
4
3
2
1
0
9
8
7
6
5
4
3
2
1
0

of outputting sections, the receiving apparatus comprising: extracting means for extracting the flag from the signal information received through the predetermined transmission line; and controlling means for activating an outputting section, which output a designated output signal format out of the plurality of outputting sections in accordance with the flag and controls the other outputting sections to be prohibited to be activated.

According to a fifth aspect of the present invention, there provided a recording medium, which is recorded with at least a video information in conjunction with an auxiliary information on each track of a predetermined length in a unit of a data block of a fixed length, the recording medium is further characterized in that a flag for designating a signal format to be outputted by an outputting apparatus of the video information is recorded in the data block.

According to a sixth aspect of the present invention, there provided a transmission data, which is transmitted with multiplexing at least a video information by a transport packet and with constituting a transport stream, the transmission data is further characterized in that a flag for designating a signal format to be outputted by an outputting apparatus of the video information is included in the transport stream.

Other object and further features of the present invention will be apparent from the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is a block diagram of a reproducing apparatus according to a first embodiment of the present invention.

5 Fig. 2 shows an exemplary format of a recording track on a magnetic tape shown in Fig. 1.

Fig. 3 shows an exemplary format of a sync-block in a main code area shown in Fig. 2.

10 Fig. 4 shows a configuration of flags allocated in two bytes of a main header area shown in Fig. 3.

Fig. 5 shows an exemplary format of a transmission signal according to a second embodiment of the present invention.

Fig. 6 shows PMT (Program Map Table) syntax in accordance with the MPEG (Moving Picture Experts Group) system standard.

15 Fig. 7 shows syntax of an OPC (OutPut Control) descriptor to be transmitted according to the second embodiment of the present invention.

20 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[First Embodiment]

This embodiment is explained with referring to the D-VHS (Digital-Video Home System: registered trademark of Victor Company of Japan, Ltd.) system, which can record and reproduce video and audio information in a digital signal format.

Fig. 1 is a block diagram of a reproducing apparatus according to a first embodiment of the present invention.

Fig. 2 shows an exemplary format of a recording track on a magnetic tape shown in Fig. 1.

In Fig. 1, a reproducing apparatus comprises a magnetic tape 1, a rotary head 2, a head amplifier 3, an equalizer 4, a 5 demodulator 5, an error correction code (ECC) circuit 6, a digital interface (D. I/F) 7, an MPEG (Moving Picture Experts Group) decoder 8, an output control circuit 9, an NTSC (National Television System Committee) encoder 10 and a switch circuit 11. The magnetic tape 1 is one embodiment of a recording medium 10 according to the present invention and is previously recorded with a desired information in conjunction with an audio information in a digital signal format on a digital signal recording track having a longitudinal axis slanted to a longitudinal direction of the magnetic tape 1. Further, an output control (OPC) information is 15 also recorded on a digital signal recording track in the magnetic tape 1.

As shown in Fig. 2, a digital signal recording track formed on the magnetic tape 1 is composed of a certain amount of data areas called a sync-block (SB). A plurality of SBs is allocated on a digital 20 signal recording track on the magnetic tape 1 in accordance with scanning by the rotary head 2. In other words, as shown in Fig. 2, a track format on a digital signal recording track comprises two sync-blocks of a margin area 21, three sync-blocks of a preamble area 22, four sync-blocks of a sub-code area 23, three sync-blocks of 25 a post-amble area 24, three sync-blocks of an IBG (Inter Block Gap) area 25, one sync-block of a preamble area 26, 336 sync-blocks of a main code area or a data area 27, two sync-blocks of a post-amble area 28 and a margin area 29. The main code area 27

3
9
4
1
9
2
0
0
5
1
0
0
0
0

and the sub-code area 23 are provided for a recording area of information.

In addition thereto, a rotating member mounted with the rotary head 2 is controlled so as to rotate at 30 rps or 29.97 rps by 5 a drum servo system, so that the margin area 29 is composed of two sync-blocks or 2.356 sync-blocks. Accordingly, one track is totally composed of 356 sync-blocks or 356.356 sync-blocks. In any cases, the sub-code area 23 and the main code area 27 are assigned to be a fixed length of four sync-blocks and 336 sync-blocks 10 respectively. In the main code area 27, 188 bytes per each packet of a MPEG2 transport stream is recorded in a unit of two sync-blocks, which are adjacent to each other.

Fig. 3 shows an exemplary format of a sync-block in the main code area 27 shown in Fig. 2.

15 A typical format of a sync-block allocated in the main code
area 27 out of each sync-block mentioned above is shown in Fig. 3.
In Fig. 3, one sync-block comprises two bytes of a sync-signal
(Sync) area 31 for reproducing the sync-block, three bytes of an
address information (ID) area 32, two bytes of a main header
20 storage area 33 for containing various information, one byte of a
data auxiliary (Data-AUX) area 34, 96 bytes of a data storage area
35 and 8 bytes of a inner parity storage (Inner Parity) area 36 for
correcting error of the sync-block information. These areas are
constituted in time series and composed of 112 bytes totally.
25 Further, the main header area 33, the Data-AUX area 34 and the
data storage area 35 configure 99 bytes of a data area. A first
three bytes composed of two bytes of the main header storage area
33 and one byte of the Date-AUX area 34 out of 99 bytes of the data

area is an information recording area, which can not be rewritten by a user, and a second 96 bytes is the data storage area 35 of information.

Fig. 4 shows a configuration of flags allocated in two bytes of
5 the main header storage area 33 shown in Fig. 3. In the main
header storage area 33, as shown in Fig. 4, a format information is
allocated and recorded in four bits of a high-order half of a first
byte, and a sync-block information is allocated and recorded in
total 12 bits composed of four bits of a lower-order half of the first
10 byte and a second byte.

In Fig. 4, a "Format ID" shows whether a track format is a
normal mode recording or other mode recording. An "Application
Detail" is an information utilized for discriminating whether a
digital signal to be recorded is an MPEG2 transport packet in 188
15 bytes of packet size or other packet by other transmission system
in 140 bytes of packet size. A "Time Compression Ratio" is an
information for showing a compression ratio. Further, a "D.T." is
two bits of a data type information utilized for discriminating if a
data is an MPEG packet, a dummy data or a trick play data. An
20 "S.B.C." is a sync-block counter information utilized for
discriminating whether a sync-block having a inherent main
header is a first sync-block out of adjoining two sync-blocks or a
second while two sync-blocks of which packets are adjacent to each
other are recorded as a unit. Further, an "SB No." represents a
25 sync-block number, wherein "n" in the "SB No." column is a
natural number. Furthermore, "CGMS" and "OPC" represent the
"Copy Generation Management System" and an "output control
information" respectively as mentioned above.

In a recording track of the magnetic tape 1 reproduced by the reproducing apparatus according to the embodiment of the present invention, an OPC information in conjunction with a CGMS information is recorded in the main header storage area 33 shown

5 in Fig. 3 being existed in each sync-block of the main code area 27 in Fig. 2. Actually, as shown in Fig. 4, two bits of high-order first and second bits of a main header being recorded in the main header storage area 33 of an eleventh sync-block in a first period out of main headers, which are repeatedly recorded by a unit of 12

10 sync-blocks in the main header storage area 33 by two bytes each, is allocated to a copy generation control signal prescribed by the CGMS standard. Further, two bits of high-order third and fourth bits of a main header, which are recorded in the main header storage area 33 of a twelfth sync-block in the first period, is

15 allocated to an OPC information.

A first bit of two bits of OPC information shows a permission information of a digital output, "0" represents permission and "1" represents prohibition. Further, a second bit of the two bits of OPC information shows a format of analog output, "0" represents

20 "only an output of NTSC composite video signal" and "1" represents "permitting component output". As mentioned above, two bits of a copy generation control signal prescribed by the CGMS standard is as follows: "00" represents "permit to copy or permit dubbing recording", "10" represents "permit to copy once or permit dubbing recording once" and "11" represents "prohibit to copy or prohibit dubbing".

25

Referring back to Fig. 1, by two rotary heads having different azimuth angles respectively, which are mounted on a rotating

surface of a rotary member (not shown) with facing toward each other at an angle of 180 degrees, although just one rotary head 2 is illustrated in Fig. 1, a digital signal is reproduced from a recording track of the magnetic tape 1, which is wound diagonally

5 around an outer surface of the rotary member over an angle range of approximately 180 degrees and runs in a constant velocity. The reproduced digital signal is amplified by the head amplifier 3, added with a predetermined equalization characteristic by the equalizer 4 and demodulated by the demodulator 5, and then error
10 of data reproduced from the data storage area 35 is corrected by the ECC circuit 6 by using an ECC, which is reproduced from the inner parity storage area 36 or the main code storage area 27.

While an MPEG2 transport stream is taken out from the ECC circuit 6 and supplied to the D. I/F (digital interface) 7, the

15 MPEG2 transport stream is supplied to the MPEG decoder 8 and demodulated. A control information (CTL), which is contained in the main header area 33 shown in Fig. 3, is taken out from the ECC circuit 6 and supplied to the output control circuit 9 being controlled by a micro computer, wherein the output control circuit 20 performs various controls. However, in a case that the first bit of the OPC information is "0", the D. I/F 7 is enabled and the inputted MPEG2 transport stream is outputted as it is. In a case that the first bit of the OPC information is "1", the D. I/F 7 is disabled and outputting the inputted MPEG2 transport stream is 25 prohibited.

Further, in a case that the second bit of the OPC information is "0", the output control circuit 9 turns the switch circuit 11 off and prohibits an analog component signal from the MPEG decoder.

8 to output. On the other hand, in a case that the second bit of the OPC information is "1", the output control circuit 9 turns the switch circuit 11 on and makes an analog component signal from the MPEG decoder 8 output through the switch circuit 11.

5 Furthermore, an analog component signal from the MPEG decoder 8 is supplied to the NTSC encoder 10, wherein the analog component signal is converted into a color video signal of the NTSC system, that is, an analog composite signal and outputted. Accordingly, in a case that the second bit of the OPC information 10 is "1", both the analog component signal from the MPEG decoder 8 and the analog composite signal from the NTSC encoder 10 are permitted to output.

If an information recorded in the magnetic tape 1 is an HD signal in high definition, in a case that the second bit of an OPC 15 information is "0", only a down converted NTSC composite signal is outputted from the NTSC encoder 10. In a case that the second bit of the OPC information is "1", an HD component signal from the MPEG decoder 8 and an NTSC composite signal from the NTSC encoder 10 are outputted respectively.

20 In addition thereto, with respect to controlling operation in a reproducing apparatus of the copy generation control signal prescribed by the CGMS standard, it is depicted in the Japanese Patent Laid-open Publication No. 11-101178/1999 and 11-319955/1999 filed by the same applicant as that of the present 25 invention. Therefore, its detailed explanation is omitted.

Accordingly, in this embodiment, an output format can be selected by an OPC information in accordance with an intention of a copyrighter, so that copyright can be more effectively protected.

Further, another copyrighter having a different intention for an outputting signal format can also utilize a recorded software, which can be reproduced in a same format by a same reproducing apparatus, so that various high quality pictures can be enjoyed.

5

[Second Embodiment]

Fig. 5 shows an exemplary format of a transmission signal according to a second embodiment of the present invention. In

Fig. 5, an MPEG2 transport stream comprises a plurality of

- 10 transport packets. Each transport packet is composed of 188 bytes and comprises eight bits of a sync-byte area, one bit of an error indication area, one bit of a unit start indication, one bit of transport packet priority area, 13 bits of PID (Packet Identification) area, two bits of scramble control area, two bits of adaptation field control area, four bits of circulating counter area, an adaptation area and a payload area 40.
- 15

In the first embodiment mentioned above, it is depicted that an OPC information and a copy generation control signal prescribed by the CGMS standard are allocated and recorded in

- 20 the main header area 33 of a recording track. However, in this second embodiment, the payload area 40 allocated in a transport packet constituting a commonly known MPEG2 transport stream as shown in Fig. 5 is recorded with at least an OPC information and reproduced.

- 25 In other words, a digital signal, which is modulated by a predetermined system such as the NRZI (non-return to zero inverted), is generated after the transport packet is converted into a signal by a unit of a sync-block in a predetermined format. The

digital signal is recorded in the main code area 27 on a recording track of a magnetic tape by using a rotary head, and then the magnetic tape is reproduced. In this case, it is a matter of fact that a certain information is recorded so as for a reproducing apparatus to identify that an OPC information not a data is recorded.

While the invention has been described above with reference to specific embodiment and method thereof, it is apparent that many changes, modifications and variations in the arrangement of equipment and devices can be made without departing from the invention concept disclosed herein. For example, the first and the second embodiments mentioned above are depicted with referring to a digital VTR. However, the present invention is not only limited to a digital VTR but also applied to any apparatus reproducing a recording medium such as an optical disk other than a magnetic tape. Further, a medium can be applied to a transmission line as well. The transmission line is not only limited to a wireless or wired transmission line but also can be applied to a signal or a transmission data itself, which is transmitted to a computer or other equipment in a signal format shown in Figs. 6 and 7.

[Third Embodiment]

With referring to Figs. 6 and 7, a receiving apparatus, which receives an information signal, that is, a transmission data transmitted through a digital broadcasting transmission line and reproduces, is depicted next.

Fig. 6 shows PMT (Program Map Table) syntax in accordance

with the MPEG system standard.

Fig. 7 shows syntax of an OPC descriptor to be transmitted according to a third embodiment of the present invention.

Almost all video and audio signals transmitted through a digital broadcasting are formed in a configuration of a transport stream mentioned above and transmitted in conjunction with various information descriptors. An OPC information of the present invention can be transmitted through a transmission line such as broadcasting by transmitting it being included in a payload area of a transport packet, which constitutes an MPEG2 transport stream.

In this embodiment, various information descriptor areas in a payload area receive a transmission data, which multiplexes the OPC information, as a signal format for easier handling by such a digital broadcasting. The MPEG2 transport stream standard defines a private descriptor, which can be utilized by a broadcaster, as well as some essential descriptors such as an identification information. The private descriptor is transmitted through a descriptor "50", for example, in the PMT of the MPEG2 transport stream shown in Fig. 6.

In Figs. 6 and 7, "bslbf" means that a transmission data is transmitted in an order of left side bit first and "unimsbf" means that a transmission data is transmitted in sequence from the MSB. "rpchof" (reminder_polynomial_coefficients_highest_order_first) means that coefficients generating in a generative polynomial of an ECC CRC (cyclic redundancy check) are transmitted in sequence of highest order first. In addition thereto, details of a syntax of PMT is depicted in the reference, ISO/IEC 13818-1/ITU

Rec.H.222.0: 1996 (Information Technology –Generic Coding of Moving Pictures and Associated Audio Information Part 1: Systems). Therefore, further details of the syntax are omitted.

Syntax of an OPC descriptor, which transmits an OPC information in this embodiment, is shown in Fig. 7. In Fig. 7, a descriptor tag (descriptor_tag) is a syntax defined by the MPEG standard and an information utilized for specifying a type of the descriptor in eight bits. A descriptor length (descriptor_length) indicates a length of a descriptor in succeeding fields in eight bits.

Further, a digital output control flag (digital_output_control_flag) succeeding seven bits of reserved area is composed of one bit. In a case of “0”, it is permitted. In a case of “1”, it is not permitted.

Further, a system information loop length (system_info_loop_length) indicates that a system ID is transmitted as many as a number of loop lengths. Furthermore, an analog output control flag (analog_output_control_flag) is composed of one bit and indicates a type of analog output format. In a case of “0”, it indicates that only an NTSC composite video signal is permitted to output. In a case of “1”, it indicates that component is permitted to output.

A system identifier (system_identifier) describes a system being permitted to output a digital output in eight bits. It is assigned that the “0x01” of a 256 stage in the eight bits indicates, for example, the IEEE 1394 system and the “0x02” and “0x03” indicate another systems “A” and “B” respectively. In a case that only a digital signal prescribed by the IEEE 1394 system standard, hereinafter called a 1394 digital signal, is permitted to output, the system_info_loop_length is set to “1” and the eight bits of the

system_identifier is described by one system identifier signal of "0x01", and then the 1394 digital signal is transmitted.

A configuration of a receiving apparatus in accordance with this embodiment can be realized such that a commonly known 5 receiving section for a digital broadcasting signal is installed instead of the magnetic tape 1, the rotary head 2 and the head amplifier 3 shown in Fig. 1. A base band signal of a desired broadcasting station is tuned in and down converted by the receiving section. Accordingly, the receiving apparatus can be 10 realized.

Furthermore, an OPC information is not only limited to two bits but also a plurality of bits such as three bits or more. It is also applicable that in a case of four bits, an output format can be assigned in 16 states such as "0000" through "1111". In a case of 15 "0000", for example, a 1394 digital signal and an analog component signal are permitted to output. In a case of "0001", a 1394 digital signal is prohibited to output and an analog component signal is permitted to output. In a case of "0010", a 1394 digital signal is permitted to output and an analog 20 component signal is prohibited to output. In a case of "0011", a 1394 digital signal is permitted to output and an HD analog signal is prohibited to output, or the like.

In addition thereto, selection of outputting video information is explained in the above-mentioned embodiments. In a case of 25 selection of outputting audio information, for example, a flag utilized for selecting whether the audio information is outputted as a digital audio signal composed of 48 kHz of sampling frequency and more than 16 bits of bits per sample or outputted as a digital

audio signal composed of less than 48 kHz and less than 16 bits can be allocated in the main header area 33.

According to the aspect of the present invention, in an apparatus for receiving or reproducing transmission information, 5 a signal format to be outputted by an outputting apparatus can be designated in accordance with the above-mentioned flag to be inputted in conjunction with transmission information when the transmission information is converted into more than one signal format and outputted, so that the transmission information can be 10 processed to be outputted in a certain signal format, which is intended by a copyrighter of the transmission information. Accordingly, another copyrighter having a different intention for an outputting signal format can utilize a recorded software, which can be reproduced in a same format by a same reproducing 15 apparatus, or can receive and reproduce a broadcasting signal by a same receiving apparatus. Compatibility of protecting copyright properly in accordance with an intention of a copyrighter and providing reproduction information such as various high quality pictures can be realized, so that the present invention is 20 extremely useful for industrial applications.

WHAT IS CLAIMED IS:

1. A method for transmitting information to an outputting apparatus, which can converts an information in a transport packet into at least one signal format out of a plurality of signal formats being different from each other and output the converted information, said method is characterized in that a flag for designating a signal format to be outputted by said outputting apparatus is transmitted with being included in said information.

2. The method for transmitting information in accordance with claim 1, wherein said information includes at least a video information, and wherein said outputting apparatus can convert said video information into a digital signal, an analog composite signal and an analog component signal respectively and output, and wherein said flag permits or prohibits to output said digital signal and designates for outputting one of said analog composite signal and analog component signal or both of them.

3. An apparatus for transmitting information with generating an information to be transmitted to an outputting apparatus, which can converts information in a transport packet into at least one signal format out of a plurality of signal formats being different from each other and output the converted information, said apparatus is further characterized in that a flag for designating a signal format to be outputted by said outputting apparatus is transmitted with being included in said information.

4. The apparatus for transmitting information in accordance with claim 3, wherein said information includes at least a video information, and wherein said outputting apparatus can convert said video information into a digital signal, an analog composite signal and an analog component signal respectively and output, and wherein said flag permits or prohibits to output said digital signal and designates for outputting one of said analog composite signal and analog component signal or both of them.

5. A reproducing apparatus having a plurality of outputting sections, which converts an information reproduced from a recording medium into a plurality of signal formats being different from each other and outputs respective signal formats, wherein said recording medium is previously recorded with a flag, which designates an output signal format from said plurality of outputting sections, said reproducing apparatus comprising:

extracting means for extracting said flag from a reproduced signal from said recording medium;

controlling means for activating an outputting section, which outputs a designated output signal format out of said plurality of outputting sections in accordance with said flag and controls the other outputting sections to prohibit to be activated.

6. The reproducing apparatus in accordance with claim 5, wherein said recording medium is recorded with a digital signal, which contains at least a video information as said information, and wherein said outputting section further comprising:

a digital interface section of outputting a digital signal in a

stream format from said reproduced information;
a decoder of converting said reproduced information into an analog component signal; and
an encoder of converting said analog component signal into an analog composite signal of a predetermined television system.

7. A receiving apparatus having a plurality of outputting sections, which converts a signal information received through a predetermined transmission line into a plurality of signal formats being different from each other and outputs respective signal formats, wherein said signal information received through said predetermined transmission line is previously multiplexed with a flag, which designates an output signal format from said plurality of outputting sections, said receiving apparatus comprising:

extracting means for extracting said flag from said signal information received through said predetermined transmission line; and

controlling means for activating an outputting section, which output a designated output signal format out of said plurality of outputting sections in accordance with said flag and controls the other outputting sections to prohibit to be activated.

8. The receiving apparatus in accordance with claim 7, wherein said signal information received through said predetermined transmission line is multiplexed with a digital signal, which contains at least a video information, and wherein said outputting section further comprising:

a digital interface section of outputting a digital signal in a

stream format from said signal information received through said predetermined transmission line;

a decoder of converting said received signal information into an analog component signal; and

an encoder of converting said analog component signal into an analog composite signal of a predetermined television system.

9. A recording medium, which is recorded with at least a video information in conjunction with an auxiliary information on each track of a predetermined length in a unit of a data block of a fixed length, said recording medium is further characterized in that a flag for designating a signal format to be outputted by an outputting apparatus of said video information is recorded in said data block.

10. The recording medium in accordance with claim 9, wherein said flag is recorded in an area, which can not be rewritten by a user.

11. A transmission data, which is transmitted with multiplexing at least a video information by a transport packet and with constituting a transport stream, said transmission data is further characterized in that a flag for designating a signal format to be outputted by an outputting apparatus of said video information is included in said transport stream.

12. The transmission data in accordance with claim 11, wherein said outputting apparatus of the video information can convert

said video information into a digital signal, an analog composite signal and an analog component signal respectively and output, and wherein said flag permits or prohibits to output said digital signal and designates for outputting one of said analog composite signal and analog component signal or both of them.

ABSTRACT

An output control (OPC) information is recorded on the magnetic tape 1 in conjunction with an MPEG stream. The OPC information is composed of two bits and is extracted from a reproduced signal by the output control circuit 9 and controls the digital interface (D. I/F) 7 and the switch circuit 11. In other words, in a case that a first bit of the OPC information is "0", the output control circuit 9 makes the D. I/F 7 enable and permits to output a digital signal. In a case of "1", the output control circuit 9 prohibits to output the digital signal. Further, in a case that a second bit of the OPC information is "0", the output control circuit 9 turns the switch circuit 11 off and prohibit to output an analog component signal. In a case of "1", the output control circuit 9 permits to output the analog component signal.

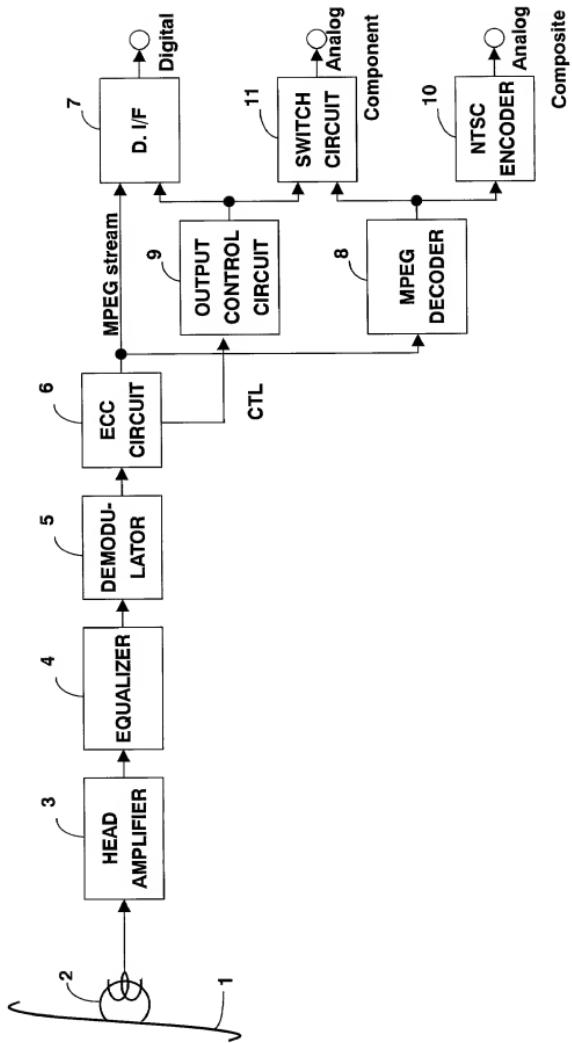


Fig. 1

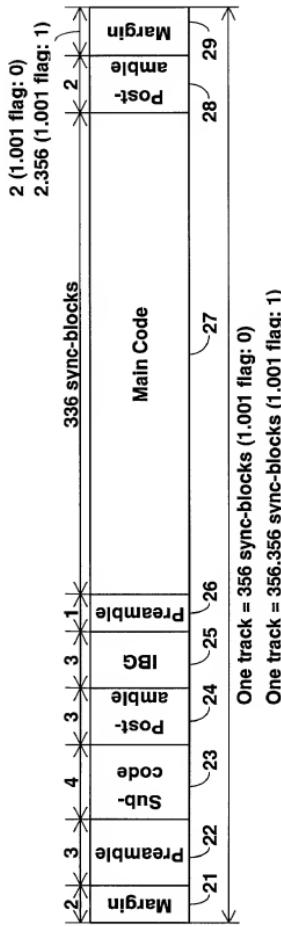


Fig. 2

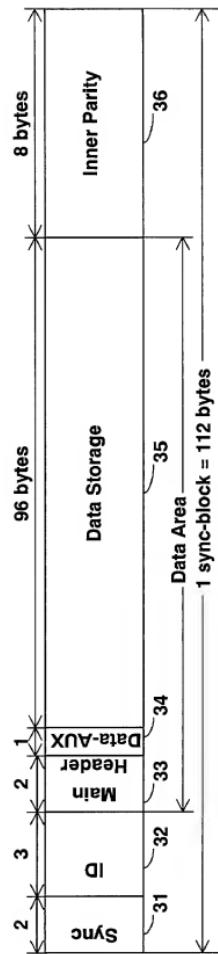


Fig. 3

SB No.	First Byte				Second Byte							
	MSB	LSB	MSB	LSB	MSB	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1
Format Information												Sync-block Information
2 · 6n		D.T.	S.B.C.									Data Detail
2 · 6n + 1		D.T.	S.B.C.									Data Detail
2 · (6n + 1)		D.T.	S.B.C.									Data Detail
2 · (6n + 1) + 1	Format ID	D.T.	S.B.C.									Data Detail
2 · (6n + 2)		D.T.	S.B.C.									Data Detail
2 · (6n + 2) + 1		D.T.	S.B.C.									Data Detail
2 · (6n + 3)		D.T.	S.B.C.									Data Detail
2 · (6n + 3) + 1		D.T.	S.B.C.									Data Detail
2 · (6n + 4)		D.T.	S.B.C.									Data Detail
2 · (6n + 4) + 1	Time Compression Ratio	D.T.	S.B.C.									Data Detail
2 · (6n + 5)	CGMS	Reserved	D.T.	S.B.C.								Data Detail
2 · (6n + 5) + 1		OPC	D.T.	S.B.C.								Data Detail

Fig. 4

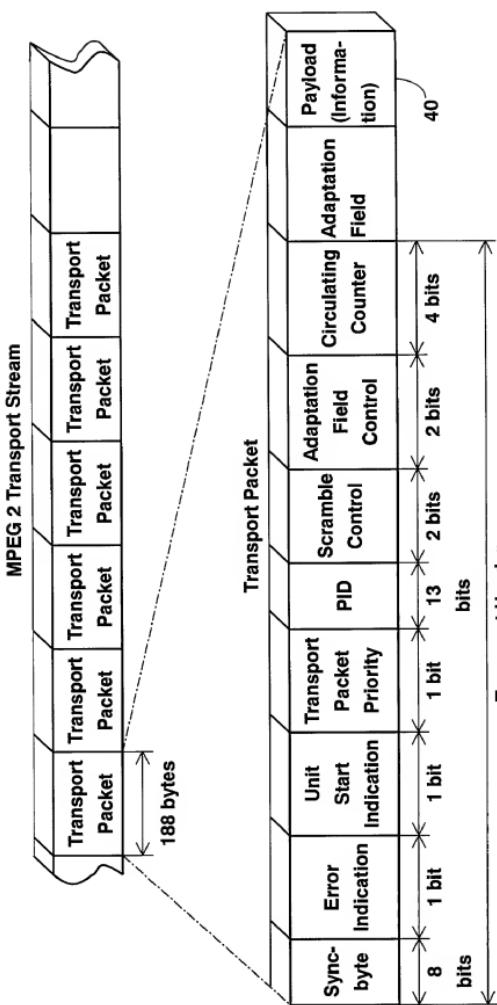


Fig. 5

Syntax	Number of bits	identifier
TS_program_map_spection () {		
table_id	8	unimsbf
section_syntax_indicator	1	bslbf
0	1	bslbf
Reserved	2	bslbf
section_length	12	unimsbf
program_number	16	bslbf
Reserved	2	bslbf
version_number	5	unimsbf
current_next_indicator	1	bslbf
section_number	8	unimsbf
last_section_number	8	unimsbf
Reserved	3	bslbf
PCR_PID	13	unimsbf
Reserved	4	bslbf
program_info_length	12	unimsbf
for (i = 0; i < N1; i++) {		
descriptor ()		
}		
for (l= 0; l < N2; l++) {		
stream_type	8	unimsbf
Reserved	3	bslbf
elementary_PID	13	unimsbf
Reserved	4	bslbf
ES_info_length	12	bslbf
for (j = 0; j < M; j++) {		
descriptor ()		
}		
}		
CRC_32	32	rpchof
}		

Fig. 6

Syntax	Number of bits	identifier
output_control_descriptor () {		
descriptor_tag	8	bslbf
descriptor_length	8	unimsbf
Reserved	7	bslbf
digital_output_control_flag	1	unimsbf
system_info_loop_length	8	unimsbf
for (i = 0; i < system_info_loop_length; ++) {		
system_identifier	8	bslbf
}		
Reserved	7	bslbf
analog_output_control_flag	1	unimsbf
}		

Fig. 7

Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下のとおり宣言します。

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

下記の名称の発明に関する請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の氏名が複数の場合）信じています。

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD AND APPARATUS FOR TRANSMITTING INFORMATION, AND REPRODUCING APPARATUS, RECEIVING APPARATUS AND RECORDING MEDIUM FOR THE INFORMATION, AND TRANSMISSION DATA THEREOF

the specification of which is attached hereto unless the following box is checked:

was filed on _____
as United States application Number or
PCT International Application Number
_____ and was amended on
_____ (if applicable).

上記発明の明細書（下記の欄で×印がついていない場合は、本書に添付）は、

月 日に提出され、米国出願番号または特許協定条約国際出願番号を_____とし、
(該当する場合)_____に訂正されました。

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration

(日本語宣言書)

私は、米国法典第3編第119条(a)-(d)項又は365条(b)項に基き下記の、米国以外の国の中なくとも一国を指定している特許協力条約365条(a)項に基く国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

Prior Foreign Application(s)

外国での先行出願

11-335501/1999

(Number)
(番号)

Japan
(Country)
(国名)

26/November/1999
(Day/Month/Year Filed)
(出願年月日)



2000-14671/2000

(Number)
(番号)

Japan
(Country)
(国名)

21/January/2000
(Day/Month/Year Filed)
(出願年月日)



私は、第35編米国法典119(e)項に基いて下記の米国特許出願規定に記載された権利をここに主張します。

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Application No.)
(出願番号)

(Filing Date)
(出願日)

私は、下記の米国法典第3編第120条に基いて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)に基く権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第3編第112条第1項又は特許協力条約で規定された方法で先行する米国特許出願に開示されていない限り、その先行米国出願書提出日以降で本出願書の日本国内または特許協力条約国提出日までの期間中に入手された、連邦規則法典第37編第1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況: 特許特許済、係属中、放棄済)

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況: 特許特許済、係属中、放棄済)

私は、私自身の知識に基いて本宣言書中で私が行う表明が真実であり、かつ私の入手した情報と私の信じるところに基く表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基き、罰金又は拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行なえば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby claim foreign priority under Title 35, United States Code, Section 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States, listed below and have also identified below, by checking box, any foreign application for patent or inventor's certificate, or PCT international application, having a filing date before that of the application on which priority is claimed:

Priority Not Claimed
優先権主張なし

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of application:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration
(日本語宣言書)

委任状： 私は、下記の発明者として、本出願に関する一切の手続きを米国特許商標局に対して遂行する弁理士または代理人として、下記の者を指名致します。（弁護士、又は代理人の氏名及び登録番号を明記のこと）

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

Morris Liss, Registration No. 24,510

書類の送付先

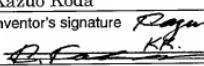
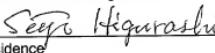
Send Correspondence to:

Pollock, Vande Sande & Amernick, R.L.L.P.
P.O. Box 19088
Washington, D.C.
20036-0088

直通電話連絡先：（名前及び電話番号）

Direct Telephone Calls to: (name and telephone number)

Morris Liss
(202) 331-7111

唯一または第一発明者名		Full name of sole or first inventor	
Kazuo Koda		Inventor's signature  Date 11/07/2000	
発明者署名	日付		
住所	Residence 3-76-3, i-710, Mutukawa, Minami-ku, Yokohama-shi, Kanagawa-ken, Japan		
国籍	Citizenship Japan		
私書箱	Post Office Address Same as residence		
第二共同発明者	Full name of second joint inventor, if any Seiji Higurashi		
第二共同発明者署名	日付	Second inventor's signature  Date 11/07/2000	
住所	Residence 1-36-7, Midori-cho, Fuchu-shi, Tokyo, Japan		
国籍	Citizenship Japan		
私書箱	Post Office Address same as residence		
(第三以降の共同発明者についても同様に記載し、署名をすること。) (Supply similar information and signature for third and subsequent joint inventors.)			

第三共同発明者名		Full name of third joint inventor, if any Takayuki Sugahara	
発明者の署名	日付	Third inventor's signature <i>Takayuki Sugahara</i>	Date 11/07/2000
住所	Residence 3-23-7-1-702, Hon-cho, Yokosuka-shi, Kanagawa-ken, Japan		
国籍	Citizenship Japan		
私書箱	Post Office Address same as residence		
第四共同発明者		Full name of fourth joint inventor, if any Seiji Higurashi	
第四共同発明者の署名	日付	Fourth inventor's signature	Date
住所	Residence		
国籍	Citizenship		
私書箱	Post Office Address		
第五発明者名		Full name of fifth joint inventor, if any	
第五発明者の署名	日付	Fifth inventor's signature	Date
住所	Residence		
国籍	Citizenship		
私書箱	Post Office Address		
第六共同発明者		Full name of sixth joint inventor, if any	
第六共同発明者の署名	日付	Sixth inventor's signature	Date
住所	Residence		
国籍	Citizenship		
私書箱	Post Office Address		